

**Abritus 72 Ltd**

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## **Abrites Commander for BMW vehicles**



### **User Manual**

### **Beta Version**

**Version: 3.1**

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<b>1 INTRODUCTION.....</b>	<b>4</b>
<b>2 INSTALLATION.....</b>	<b>5</b>
<b>3 BROADCAST DIAGNOSTIC SERVICES.....</b>	<b>9</b>
<b>4 PHYSICAL ADDRESSING DIAGNOSTIC SERVICES.....</b>	<b>11</b>
<b>5 SINGLE ELECTRONIC CONTROL UNIT DIAGNOSTIC.....</b>	<b>13</b>
<b>6 SPECIAL FUNCTIONS.....</b>	<b>18</b>
6.1 SYNCHRONIZATION ENGINE CONTROL UNIT AND IMMOBILIZER .....	18
6.2 TV ACTIVATION.....	18
6.3 DUMP TOOL.....	18
6.4 SERVICE INTERVAL RESET.....	19
6.5 ODOMETER RECALIBRATION.....	21
6.5.1 CAS Odometer Recalibration.....	21
6.6 PROGRAMMING OF KEYS.....	22
6.6.1 CAS3+ Key programming when there is working key.....	23
6.6.2 CAS3+ Key Programming when there is no working key.....	23
6.6.3 Synchronization in case of problem:.....	24
6.7 CODING/VEHICLE ORDER.....	25
6.8 UNIT CODING.....	27
6.9 SYNCHRONIZATION CODES.....	28
6.10 SENSOR CALIBRATION.....	29
6.11 MEASURED VALUES.....	29
6.12 INJECTORS CALIBRATION.....	31
6.13 ECU FLASHER.....	32
6.14 FLASH PROGRAMMER.....	33
<b>7 ADDITIONAL ADAPTERS AND CABLES.....</b>	<b>35</b>

# 1 INTRODUCTION

“ABRITES Commander for BMW” is a PC - Windows based diagnostic software for BMW vehicles E38 E39 E46 E53 E83 E85, E6x, E7x, E8x, E9x. It supports diagnostic capabilities for latest BMW vehicles produced after 2010 year – new BMW series 5 – body F10, new series 7 – body F01. With the help of this tool you can perform operations unsupported by other diagnostic tools with the electronic modules inside the vehicle like coding of control units, programming vehicle order, reprogramming flash memory of the units, tuning of your engine control unit, programming keys, mileage recalibration.

Functionality of your software depends on ordered functions for your interface.

Each interface produced by Abritus72 Ltd has unique serial number printed on the interface.

## 2 INSTALLATION

Together with your interface you receive windows based installation package.

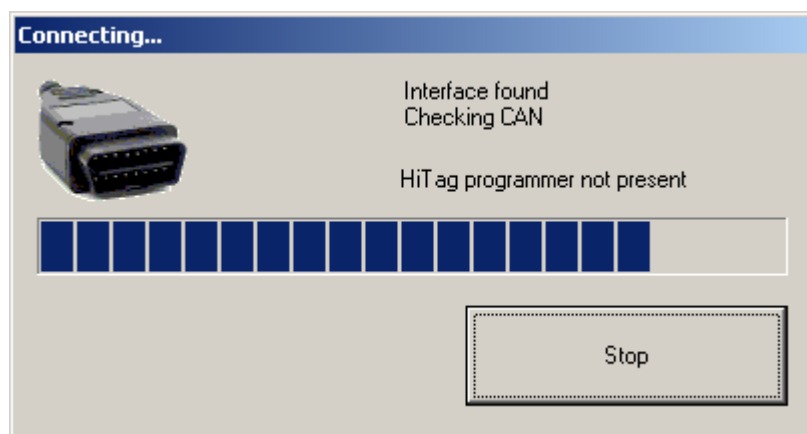
The package contents is:

- Abrites software for BMW vehicles : Setupinterface\_XXXXX\_BMW.exe where XXXX is number of your interface.
- Common setup file that installs databases for DTCs and Coding.
- 
- Database about flash memory updates of all electronic control units : E60-E70.EXE and E83-E89.EXE. You can execute the files and manually copy the extracted data into the data directory of the BMW commander. Or you can start "install.bat" that will automatically find the data directory of the BMW installation and will extract the data there. If there are more than 1 installed interfaces, the program will ask for which interface it should copy the files.

Installation steps should follows following order:

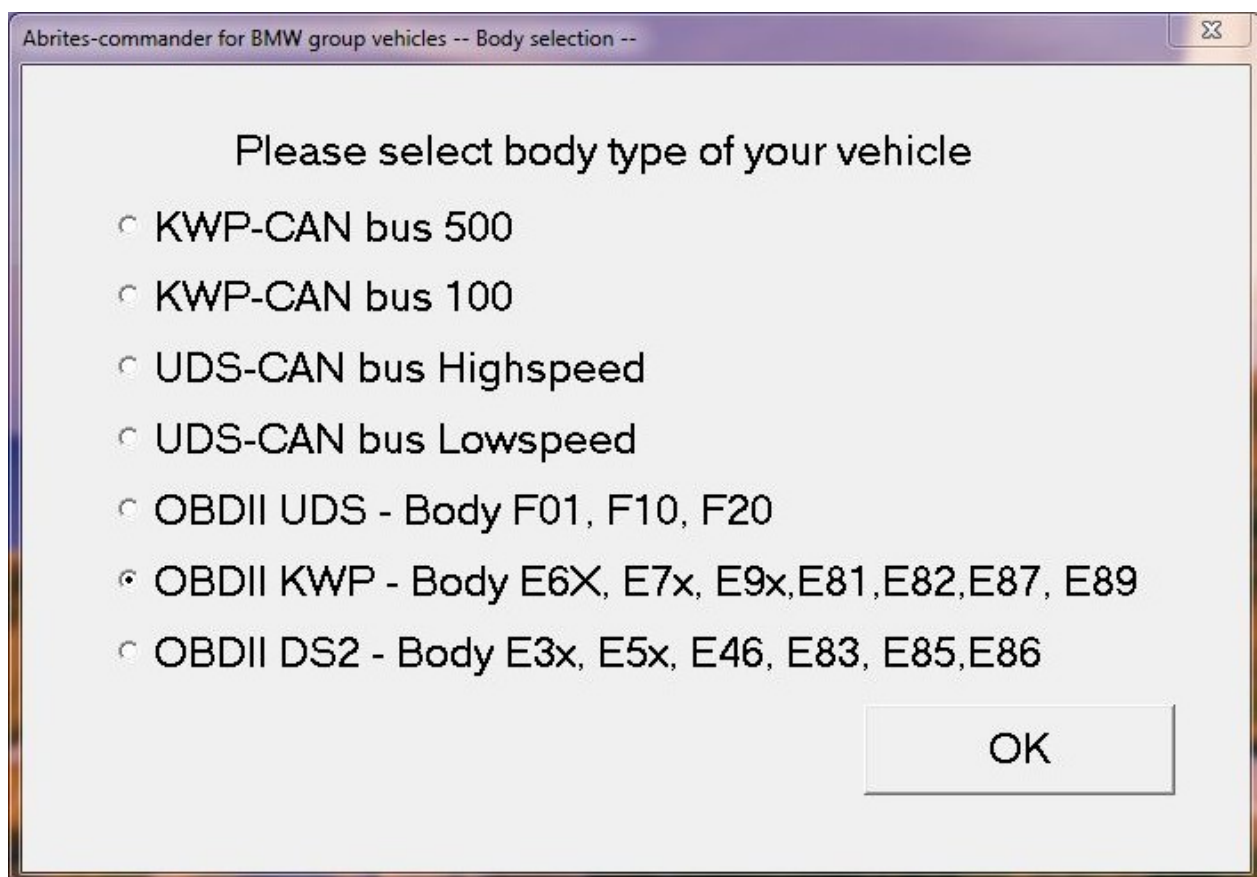
1. Start your main setup file - Setupinterface\_XXXXX\_BMW.exe
2. Start installation of all databases
3. Connect your interface to USB port of your PC and wait until operation system notify you that device is ready for usage
4. Connect diagnostic cable of your interface to diagnostic socket of the vehicle
5. Start application "Abrites Commander for BMW"

After starring of your software it will appear the following screen:



After successful detection of your interface, the software will check whether there is connected HITAG programmer and then will try to automatically detect body type of your vehicle.

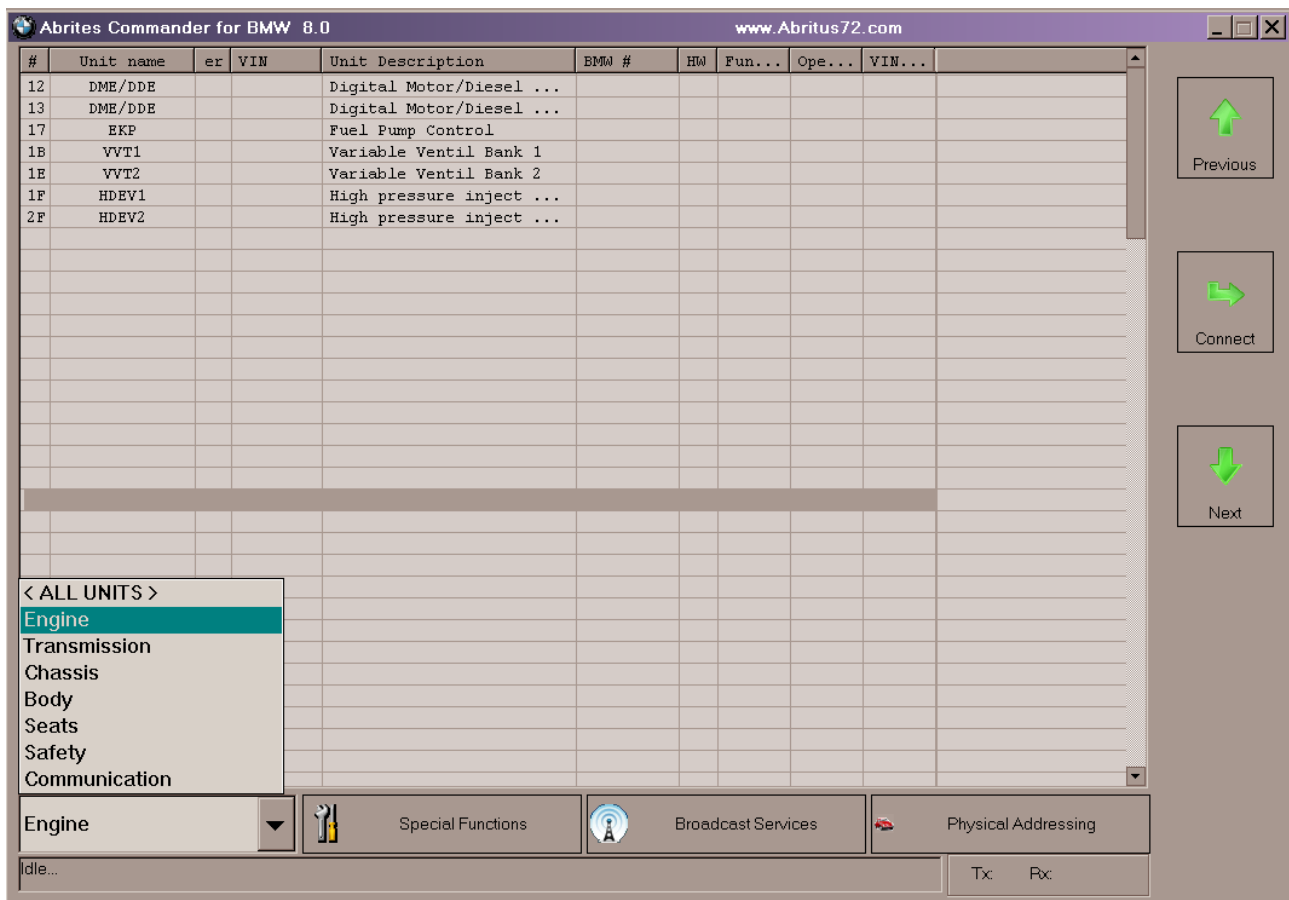
If the interface is not connected to a vehicle it will appear the following screen:



From this screen you should select type of the connection between your diagnostic interface and electronic control units in the vehicle. Connection types can be:

- KWP-CAN bus 100 – this connection is intended when your interface is directly connected to K-CAN of the vehicle (connected with CAS through CAS connector)
- KWP-CAN bus 500 – this connection is intended when your interface is directly connected to PT-CAN of the vehicle
- UDS-CAN – connection for F-Series
- OBDII KWP – this connection is intended when your interface is connected by OBDII to vehicle body E6x,E7x,E9x,E81,E82,E87,E89
- OBDII DS2 – this connection is intended when your interface is connected by OBDII to vehicle body E3x,E5x,E83,E85,E86

When is clarified connection type Abrites Commander will show you the main screen:



You can use the filter in the lower left portion of the screen to select which group of units is displayed. By default all units are displayed (in the example above we used filter to display just the units related to the engine).

From this main screen you have following choices:

- establish diagnostic session with some electronic control unit in the vehicle
- send broadcast diagnostic requests to electronic control units in the vehicle. Broadcast diagnostic requests are requests addressed to all units assembled in the vehicle.
- diagnostic requests addressed to all units in the vehicle using physical addressing. Physical addressing means that request is intended to only one electronic control unit in the vehicle.
- using special functions of BMW Commander

In order to display the Special Functions, Broadcast Services or Physical Address, you have to click on the corresponding button in at the bottom of the screen. In the example bellow, we have clicked and expanded Special Functions menu:

A

Abrites Commander for BMW 9.1


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#	Unit name	er	VIN	Unit Description	BMW #	HW	Fun...	Ope...
00	ZGM/SGM/JBBF			Central Gateway/Safet...				
01	SIM/SGM/ACSM			Safety And Informatio...				
02	SZL			Switch Center steerin...				
03	SASL/FGS			Satellite A Pillar Left				
04	SASR/VOCS_FA			Satellite A Pillar Ri...				
05	STVL/TEFA/...			Satellite door front ...				
06	STVR/TEBF/...			Satellite door front ...				
07	SSFA			Satellite Driver Seat				
08	SSBF			Satellite Passenger S...				
09	SBSL			Satellite B Pillar Le...				
0A	SBSR			Satellite B Pillar Ri...				
0B	SST			Tire System				
0C	SFSP			Seat System				
0D	SSH			Satellite Rear Seat				
0E	SFZ			Satellite vehicle cen...				
0F	ICM			Integrated Chassis Ma...				


Special Functions


Broadcast services


Physical addressing


Synch  
DME-CAS


TV Activation


Dump tool


Service  
intervals reset


Odometer  
Recalibration


CAS Keys


Vehicle Order

Unit Coding

Synchro  
Codes

Sensors  
Calibration

ECU Flasher

Flash  
Programmer

Previous

Connect

Next

Open

Tx:

Rx:



### 3 BROADCAST DIAGNOSTIC SERVICES

Broadcast diagnostic request is request which is processed from all electronic control modules which are connected to the bus where is sent. Usually in BMW vehicles diagnostic link connector is connected to the gateway module which after reception of a broadcast request will resend it to all internal networks of the vehicle so we will receive response from all electronic control modules in the vehicle.

Available broadcast diagnostic services are:

- Reading of identification, error memory. You can use this function by pressing button “Scan all units”. This is useful function for quick overview of assembled units in the vehicle.
- Clearing of error memory of all units in the vehicle – using of this function is by pressing button “Clear DTCs” or “Clear Shadow” or “Clear History” depending which error memory you want to be cleared.
- Entering in logistic mode of the vehicle – use the button “Logistic ON”
- Leaving from logistic mode – use the button “Logistic OFF”

Logistic mode of the vehicle this is are special mode where electronic control units in the vehicle becomes in low power consumption mode with limited functionality. This is mode is useful when the vehicle will stay long time at parking.

Button “Show all units” will display all possible units without check whether is available in the vehicle so with double pressing on the name of the unit we can become in other window where can perform other specific action with this unit.

By double pressing on the name of the unit we can become in other window where can be performed single electronic control unit diagnostic (refer chapter 5).

Screenshot of available broadcast services:

Abrites Commander for BMW 5.6 www.Abritus72.com

#	Unit name	er	VIN	Unit Description	BMW #	HW	Fun...	Ope...
00	ZGM/SGM/JBBF			Central Gateway/Safet...				
01	SIM/SGM/ACSM			Safety And Informatio...				
02	SZL			Switch Center steerin...				
03	SASL/FGS			Satellite A Pillar Left				
04	SASR/VOCS_FA			Satellite A Pillar Ri...				
05	STVL/TEFA/...			Satellite door front ...				
06	STVR/TEBF/...			Satellite door front ...				
07	SSFA			Satellite Driver Seat				
08	SSBF			Satellite Passenger Seat				
09	SBSL			Satellite B Pillar Left				
0A	SBSR			Satellite B Pillar Right				
0B	SST			Tire System				
0C	SFSP			Seat System				
0D	SSH			Satellite Rear Seat				
0E	SFZ			Satellite vehicle center				
0F	ICM			Integrated Chassis Ma...				
10	ZGM			Central Gateway Ex...				

Special Functions | Broadcast services | Physical addressing

Scan All Units | Show All Units | Logistic ON | Clear Shadow | Clear DTCs | Clear History | Stop Process

Logistic OFF

Idle... Tx: Rx:

## **4 PHYSICAL ADDRESSING DIAGNOSTIC SERVICES**

- Services with physical addressing to all units in the vehicle are:
- Reading of identification, error memory. You can use this function by pressing button “Scan all units”.
- Clearing of error memory of all units in the vehicle – using of this function is by pressing button “Clear DTCs”.

Using one of these functions “Abrites Commander” will send corresponding requests separate to all possible electronic control modules in the vehicle (starting from electronic module with diagnostic address 0 to module with diagnostic address 253).

Please take into account that because of module by module sending requests to all possible units these requests are little bit slow and take a lot of time. Generally we strongly needed from these functions because in some cases can be missed responses of the broadcast requests only possible way to reach similar electronic control module is physical addressing.

Button “Show all units” will display all possible units without check whether is available in the vehicle.

By double pressing on the name of the unit we can become in other window where can be performed single electronic control unit diagnostic (refer chapter 5).

Screenshot of available physical addressed services intended for all units in the vehicle:

Abrites Commander for BMW 5.6

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#	Unit name	er	VIN	Unit Description	BMW #	HW	Fun...	Ope...
00	ZGM/SGM/JBBF			Central Gateway/Safet...				
01	SIM/SGM/ACSM			Safety And Informatio...				
02	SZL			Switch Center steerin...				
03	SASL/FGS			Satellite A Pillar Left				
04	SASR/VOCS_FA			Satellite A Pillar Ri...				
05	STVL/TEFA/...			Satellite door front ...				
06	STVR/TEBF/...			Satellite door front ...				
07	SSFA			Satellite Driver Seat				
08	SSBF			Satellite Passenger Seat				
09	SBSL			Satellite B Pillar Left				
0A	SBSR			Satellite B Pillar Right				
0B	SST			Tire System				
0C	SFSP			Seat System				
0D	SSH			Satellite Rear Seat				
0E	SFZ			Satellite vehicle center				
0F	ICM			Integrated Chassis Ma...				
10	ZGM			Central Gateway Ex...				

Previous

Connect

Next

Special Functions

Broadcast services

Physical addressing

Scan all units

Show all units

Clear DTCs

Stop

Idle...

Tx

Rx

## 5 SINGLE ELECTRONIC CONTROL UNIT DIAGNOSTIC

When you double click on unit name, you see a dialog from where you can view / configure different properties of the unit like reading of DTCs, reset, R/W memory and so on.

Available functions in this screen depend on each electronic control unit. DTC descriptions are available in several languages which can be changed on the fly. The last language selection is automatically saved and used next time the DTCs are read.

12 - DME/DDE - Digital Motor/Diesel Electronic

Device identification

BMW Part Number 7.802.266 Producer Bosch

VIN 0000000 VIN UIF 0000000 Long VIN Unit without long VIN Mileage Date 12.10.2004

Function software 23.255.255 Operating software 2.3.1 Hardware 10 Errors 14 History errors 14 Shadow errors 0

4BC2 : DDE: Air-mass flow sensor

3F01 : DDE: Charge-air pressure sensor, signal

SAE code	P0237
Frequency	58
Logistics Counter	40
Odometer	--

Language: British English

81 Standard

Read DTCs Clear errors Disable DTCs Program ID R/W Memory

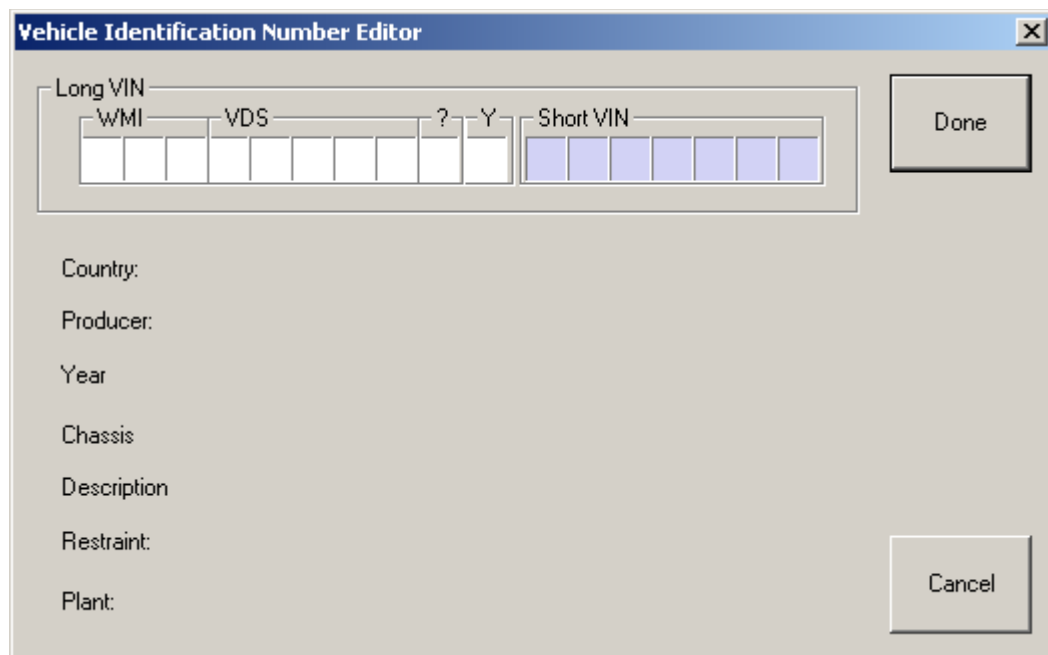
Read shadow Clear shadow Enable DTCs Injectors Alignment Measured Values

Read history Clear history Reset Synchr. IMMO ECU Coding Program UIF Exit

Ready

In the example above is displayed information about some specific motor unit (EDC16/17). If it is needed to save the DTC data to be viewed at later time then you can go to the folder where BMW commander is installed, subdirectory DATA and copy the file dtc\_generated.html. The Coding button allows reading and modification of device coding – this is a set of configurable parameters for the specific unit. Measured Values is available only for EDC16 and EDC17 - displays live data from the motor unit.

From this screen we can reach functions for programming identification of the unit – needed when we are replacing some unit from one vehicle to another (“Program ID” button):



**Vehicle Identification Number Editor**

Long VIN: WMI VDS ? Y Short VIN

Country:

Producer:

Year:

Chassis:

Description:

Restraint:

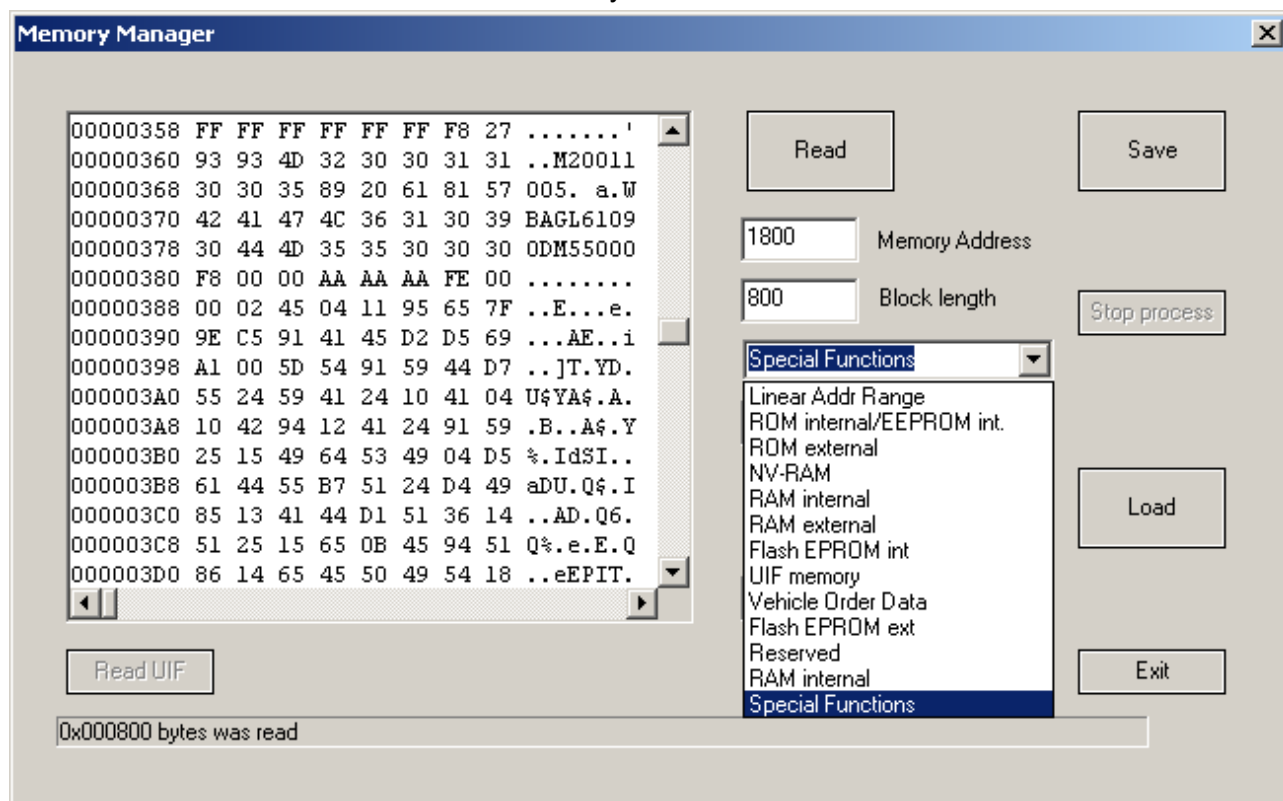
Plant:

Done

Cancel

Concerning some functions like mileage recalibration, program ID, and EEPROM memory functions for CAS units refer restrictions and requirements described in chapter 6.5 – CAS Odometer.

Bellow is screen where we can access memory of electronic control units:



**Memory Manager**

00000358 FF FF FF FF FF F8 27 .....'  
 00000360 93 93 4D 32 30 30 31 31 ..M20011  
 00000368 30 30 35 89 20 61 81 57 005. a.W  
 00000370 42 41 47 4C 36 31 30 39 BAGL6109  
 00000378 30 44 4D 35 35 30 30 30 ODM55000  
 00000380 F8 00 00 AA AA AA FE 00 .....  
 00000388 00 02 45 04 11 95 65 7F ..E...e.  
 00000390 9E C5 91 41 45 D2 D5 69 ...AE...i  
 00000398 A1 00 5D 54 91 59 44 D7 ..]T.YD.  
 000003A0 55 24 59 41 24 10 41 04 U\$YA\$.A.  
 000003A8 10 42 94 12 41 24 91 59 .B..A\$.Y  
 000003B0 25 15 49 64 53 49 04 D5 %.IdSI..  
 000003B8 61 44 55 B7 51 24 D4 49 aDU.Q\$.I  
 000003C0 85 13 41 44 D1 51 36 14 ..AD.Q6.  
 000003C8 51 25 15 65 0B 45 94 51 Q%.e.E.Q  
 000003D0 86 14 65 45 50 49 54 18 ..eEPIT.

Read UIF

0x000800 bytes was read

Read

Memory Address: 1800

Block length: 800

Stop process

Special Functions

- Linear Addr Range
- ROM internal/EEPROM int.
- ROM external
- NV-RAM
- RAM internal
- RAM external
- Flash EPROM int
- UIF memory
- Vehicle Order Data
- Flash EPROM ext
- Reserved
- RAM internal
- Special Functions

Load

Exit

Also here we can access User Info Fields editor:

UIF-general:

User Info Field Editor

Field 1

Field 2

Field 3

Field 4

Field 5

Field 6

Field 7

Field 8

Field 9

Field 10

Field 11

Field 12

Field 13

Field 14

General

VIN

Serial Numbers

Date:

9/14/2010

KM at programming:

Programming Reference:

Cancel

OK

UIF-VIN:

The screenshot shows a 'User Info Field Editor' window. On the left is a 4x2 grid of 8 buttons labeled 'Field 1' through 'Field 14'. On the right, there are three tabs: 'General', 'VIN', and 'Serial Numbers'. The 'VIN' tab is active. Inside the 'VIN' tab, there are two main sections: 'Long VIN' and 'Short VIN'. The 'Long VIN' section contains a row of 10 input boxes. The first three boxes are grouped under the label 'WMI', the next five under 'VDS', and the last two under '? Y'. The 'Short VIN' section contains a row of 8 input boxes. Below these sections are labels for 'Country:', 'Producer:', 'Year:', 'Chassis', 'Description', 'Restraint:', and 'Plant:'. At the bottom of the window are 'Cancel' and 'OK' buttons.



UIF-Serial numbers:

User Info Field Editor

Field 1

Field 2

Field 3

Field 4

Field 5

Field 6

Field 7

Field 8

Field 9

Field 10

Field 11

Field 12

Field 13

Field 14

General

VIN

Serial Numbers

DiagTool Nr:

Approved Nr:

Part Number:

9134479

Calibration Nr:

Dealer Number:

Cancel

OK

## 6 SPECIAL FUNCTIONS

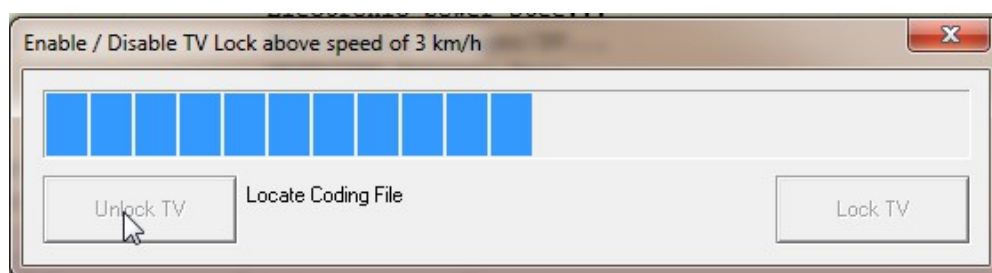
### 6.1 Synchronization Engine Control Unit and Immobilizer

By help of this function you can synchronize immobilizer system of the vehicle and engine control unit.

This function is accessible by selection special function named "Synch DME-CAS"

### 6.2 TV Activation

The option allows locking and unlocking of the TV/DVD module when the vehicle speed exceeds 3 km/h



In order to use this function for Exx body you must have the common setup installed (with the coding data)

### 6.3 Dump Tool

Using this application you can change odometer inside Engine Control Unit – EDC16. This application needs the EEPROM dump from the corresponding unit. After the dump is loaded some modification will be made and you need to store the dump as a new file, which you can program into the device.

## 6.4 Service Interval Reset

Condition Based Services			
Engine Oil		Read	Reset
Front Brakes		Read	Reset
Rear Brakes		Read	Reset
Micro Filter		Read	Reset
Diesel Filter		Read	Reset
Brake Fluid		Read	Write

Reading From Rear Brakes

Scan

← back       next →

From this dialog you can check and reset the maintenance intervals. Some of the options are distance based, other are time based. Distance based intervals show how many kilometers remain until some action is needed (replacement or repair workshop visit). Time based intervals show at what date the action should be taken. There are options that have both time based and distance based values – whichever option expires first will trigger replacement event.

The format of the distance based options is like follows:

85% (3) 10000

- ✦ The first number shows percent of availability. 100% means that the item has been just replaced and fully available, 0% means that the item has expired – it should be replaced immediately.
- ✦ The second number in brackets shows how many times the item has been replaced. In the above example – 3 times
- ✦ The third number displays how many km remain until change is required.

You can change the distance based intervals when you click on the button, showing the current data:

Condition Based Services

Engine Oil	100% (6)	Read	Write
Front Brakes	100% (0)	Read	Write
Rear Brakes			Write
Micro Filter			Write
Diesel Filter			Write
Brake Fluid		Read	Write

Set service availability

Service Reset Counter

4

Availability %

100

OK

Ready

← back

next →

From the new dialog, you can change the counter of how many times the service has been reset as well as the current availability value. When you change the data, you have to click on “Write” to send the data to the unit.

## 6.5 Odometer recalibration

The screenshot shows a software window titled "Odometer" with a close button (X) in the top right corner. The window contains a table of vehicle units with their respective odometer readings and control buttons.

Unit	Reading	Read	Write
Unit 40: CAS Car Access System		Read	Write
Unit 12: DME	524280	Read	Write
Unit 18: EGS Electronic Gear System		Read	Reset
Unit 19: VGSG/VTG DXC Gearbox/Transfer case		Read	Write
Unit 29: DSC Dynamic Stability Control		Read	Write
Unit 0F: ICM Integrated Chassis Management		Read	Write

Below the table, the status "Ready" is displayed. At the bottom, there are three buttons: "back" (with a left arrow), a text input field, and "next" (with a right arrow).

When you open the dialog, it starts automatic retrieval for some of the values. You can interrupt the scanning by pressing the “Stop” button (visible during scanning) and then click on “Read” for specific modules. Some units take more time to read their mileage and they are skipped during the auto scanning – you have to explicitly click “Read” for them.

- ⤴ If a value is read successfully, it is marked with green check
- ⤴ If value reading has failed, it is marked with exclamation mark
- ⤴ If the value is not read at all – there is no mark

In the above example, CAS mileage is not read by auto scanning – it takes more time and the user has to click “Read” explicitly.

### 6.5.1 CAS Odometer Recalibration

Currently this special function allowing us to recalibrate mileage by following way:

- For CAS3 – we can recalibrate odometer by OBDII plug. For some older models it can be done through CAN100 connection, but OBD2 should be preferred.
- For CAS2 based vehicles depending vehicle body we have two options:
  - Body E6x – we can recalibrate odometer by OBDII plug or by direct connection to CAN bus 100
  - Body E8x,E9x – we can recalibrate odometer by CAN bus 100 connection
- For CAS1 based vehicles – by diagnostic plug of the vehicle. Vehicles equipped with CAS1 are BMW series 7 – E65. Please be careful that when you performing mileage recalibration

key should be OUT FROM IGNITION and battery voltage of the vehicle should be 13V minimum.

## 6.6 Programming of KEYS

This function is available by selecting special function “CAS keys”.

You can program any kind of keys – transponder keys, remote keys, keyless keys.

You have information about currently used keys in the vehicle, key frequency and key cutting code:

The screenshot shows the 'Device diagnostic' window with the following fields and data:

Device identification					
Name	CAS	Description	Car Access System	BMW Part Number	9.227.106
VIN		VIN UIF	0000000	Long VIN	
Mileage		Date	19.11.2008	Function software	2.5.9
Operating software	3.3.0	Hardware	c4	Errors	0
History errors	-	Shadow errors	0		

CAS info	
No key in ignition!	
Key cutting (mechanical) code is 01289	
Key 0 is ENABLED. Undefined type of key.	
Key 1 is ENABLED. Remote control key.	
Key 2 is ENABLED. Undefined type of key.	
Key 3 is ENABLED. Undefined type of key.	
Key 4 is ENABLED. Undefined type of key.	
Key 5 is ENABLED. Undefined type of key.	
Key 6 is ENABLED. Undefined type of key.	
Key 7 is ENABLED. Undefined type of key.	
Key 8 is ENABLED. Undefined type of key.	
Key 9 is ENABLED. Undefined type of key.	
CAS sw version 6112233.	
CAS remote control frequency 868 MHz	

Navigation buttons: Scroll up, Scroll down

Function buttons: Read DTCs, Clear errors, Disable DTCs, Program ID, R/W Memory, Disable Key, Read shadow, Clear shadow, Enable DTCs, Read Coding, R/W keys, Enable Key, Read history, Clear history, Reset, Write Coding, Synchr. IMMO ECU, Change KM, CAS Info, Program UIF, Exit

Session: 81 Standard

Depending CAS systems we can program keys by following way:

- CAS1 systems – bmw series 7 body E65. We can program keys by OBDII connection. Please be careful while key programming key should be OUT from ignition and battery should be at least 13V.
- CAS2 systems – body E6x – we can program keys by OBDII connection or by CAN bus 100.
- CAS2 systems – body E8x,E9x – we can program keys by OBDII plug and CAN bus 100
- CAS3 systems – we can program keys by OBDII plug and CAN bus 100

When you make new key, it is advisable to **turn on the radio or the head lights** (this prevents the car to go in energy saving mode during the key making).

The procedure for key making of older BMW models (before 2007) is straightforward – there are no prerequisites and no special steps before starting the key making dialog. However for recent BMW models (2007 or later year, ISTA-P version of CAS3 firmware 37 or later) you have to follow certain steps BEFORE starting the key making procedure. These models are referred as CAS3+ the current document.

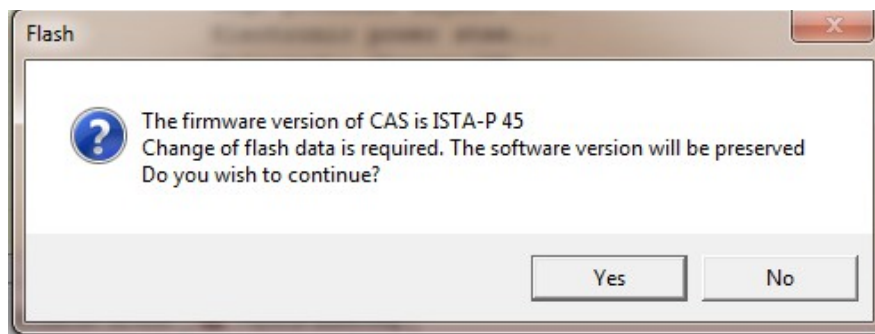
#### **6.6.1 CAS3+ Key programming when there is working key**

1. Start the engine with working key.
2. Stop the engine. Remove the working key out of the car
3. Click on CAS keys

#### **6.6.2 CAS3+ Key Programming when there is no working key**

It is advisable to program PCF7936 transponder first before programming BMW Remote or Keyless Go. When you succeed to start the car with the transponder, you can make the actual key using the steps above.

For CAS3 with firmware version ISTAP 45 or later you will see the following prompt:



If you accept it, it will start a procedure that takes about 10 min. After it, the firmware version of the CAS3 will be the original one – no downgrade or upgrade is made. Once started, please do not interrupt the procedure.

When the “CAS Keys” function is started, you will see the following screen:

Read / Program key data. CAS frequency: 868 MHz

Key 3 ▼

Program with HT2 programmer

Program in CAS only

Program with Key In Ignition

Key data	Remote control data
Serial number: c6b7a513	Number: 59ad
Crypto low: c6a493b2	Crypto low: e3314f04
Crypto high: c91c	Crypto high: 4a95
Configuration: c8eb00b8	Synchronization: 82c948e6
Key status: 2b00	Status: 30001

To make the key you should put the key/transponder into the programmer and press the "Programm" button. This will write the data into the transponder and also write back the modified dump into the CAS EEPROM.

The key status field shows whether this position is used:  
 - "2B" means that this is transponder key.

You have 3 options – to modify CAS EPROM without programming any key, program key using HITAG2 programmer or program key by putting it in ignition. When you program BMW Remote or BMW Keyless GO, you can use the option “Program with key in Ignition”. When you click it, you will see a prompt to insert the empty key in ignition.

**It is important to put the empty key in ignition only when you have seen the prompt to insert it. The empty key should NOT be put in ignition before being asked to do it.**

If you program PCF7936 transponder, you either have to use “Program with HT2 programmer” or you have to prepare the transponder with TagKey tool. The empty transponder should have the following data changed:

- Configuration should be changed to: **0EAA4854**
- UserPage0 should be changed to: **425F4F4B**
- If you have transponder with the above data then you can use it with “Program with Key in Ignition”.

If you program in ignition BMW Remote or BMW KeylessGO, check the second digit of UserPage0. It should be 4 for Remote and 5 for KeylessGO. Original BMW Keys are expected to have already proper values of UserPage0. But if for some reason the key has invalid data there, it should be manually fixed with TagKey tool, before being programmed in ignition (there is no such requirement if you program the key with TAG programmer).

If the vehicle doesn't have working key or the CAS3 firmware is ISTAP-45 or later, then the key has to be made in ignition. Even if you choose to program with HT2 programmer, the software will prompt you to insert the empty key in ignition.



### 6.6.3 Synchronization in case of problem:

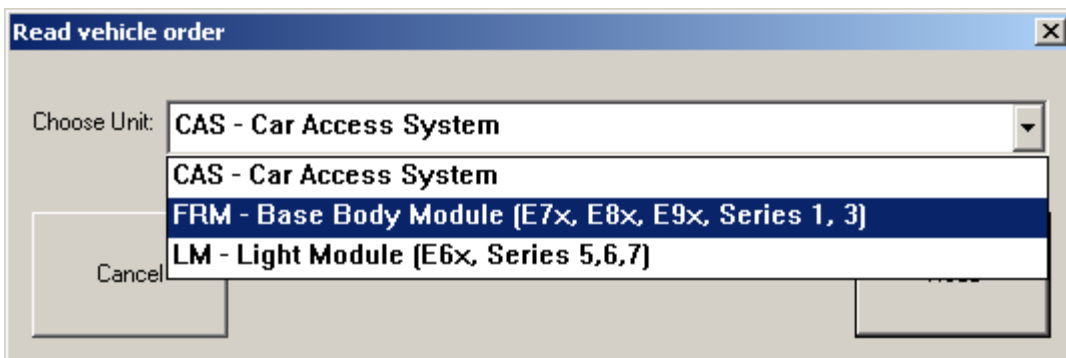
If, for some reason the key that you just made is not working (the CAS recognizes the key but the engine does not start), then the DME and CAS may be desynchronized. Insert again the original key and try to start the engine. If it does not start with the original key then follow these steps:

1. Click on DME unit, read its DTCs. Clear them, read them again. If you see some error that cannot be deleted (most frequently this is "EWS manipulation error"), then you have to disconnect the battery, wait about 5 min, connect it again. Click on DME / clear the errors. This time there shouldn't be any DTCs left.
2. Click on CAS. Clear the DTCs.
3. Click on Synch DME-CAS special function. Wait for the synchronization to finish. If you see error that synchronization failed – ignore it.
4. Start the engine with the original key.

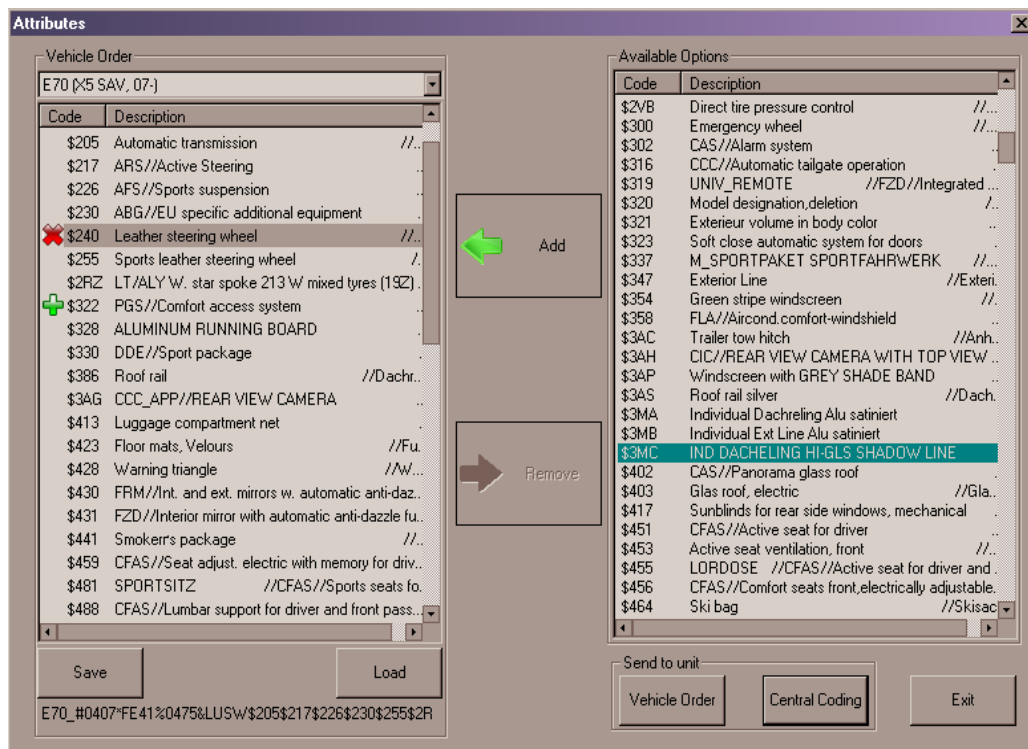
For CAS4 (F Series vehicles) you can make keys by CAS Dump. When you click on CAS Keys in F Series, you will see dialog from where you can enable / disable key positions and see all key data registered with the vehicle.

### 6.7 Coding/Vehicle Order

This is a mechanism for personalization and configuration for some of the components of the car. The vehicle order is stored in two units (for backup reasons) and the user have to choose from which unit it has to be read:



Normally both copies of the vehicle order should be the same. After successful reading, you will see the following dialog:



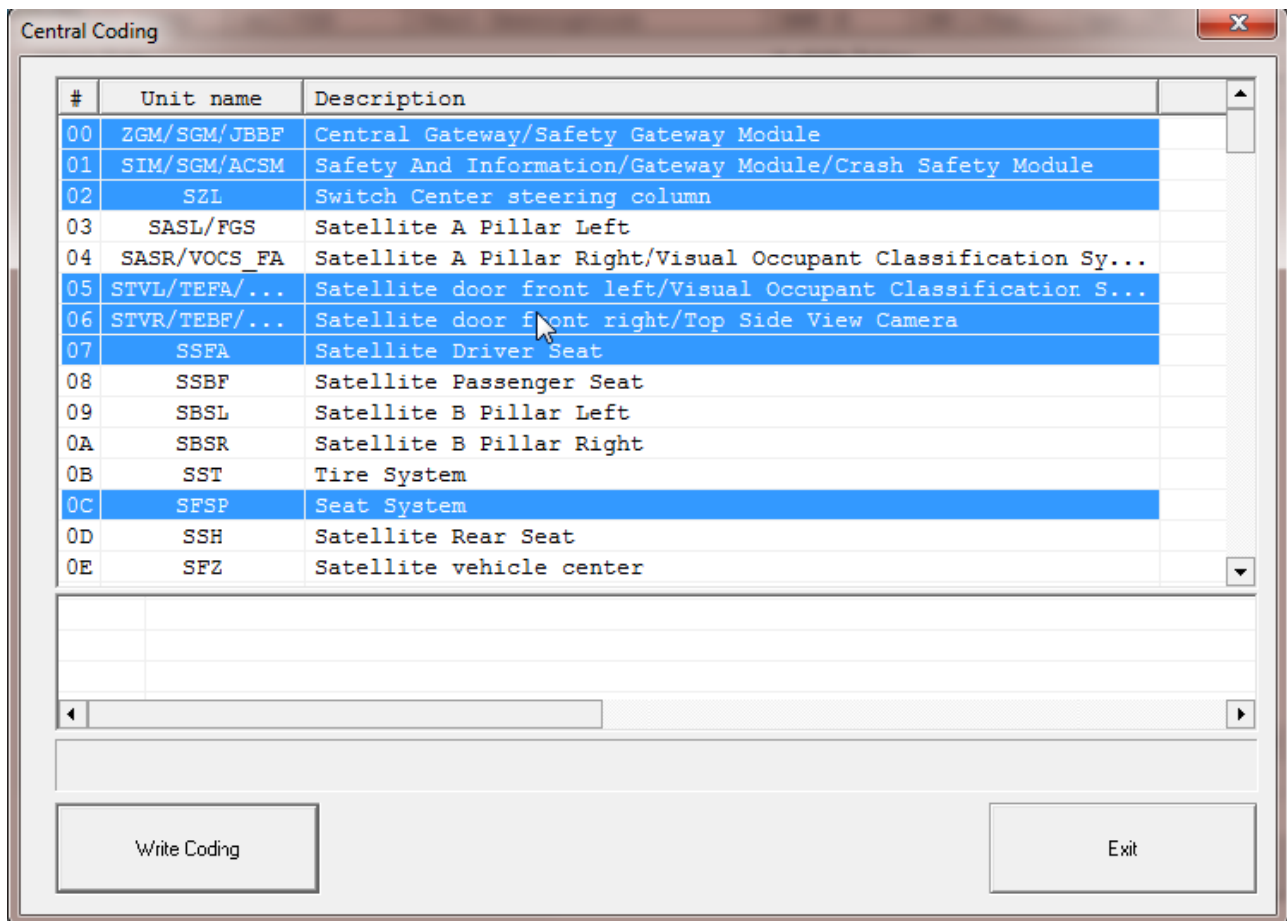
The left list describes components that are currently included in the vehicle order, the right list shows all options available for the specific chassis. To remove a component from the vehicle, point it in the “Vehicle Order” list and click “Remove”. It will stay in the list but marked with red cross so that the change is easily visible. The removed item is added in the right list “Available options”. Addition of new component in the vehicle is done by selecting it in the “Available options” list and clicking on “Add”. The new item is inserted with green cross marker so that the change is easily visible. You can backup/restore vehicle order to/from files using the “Load” and “Save” buttons.

*Note: The original vehicle order is automatically backed up on the disk. The automatically generated file is in BMW Commander directory. Its name consists of the date & time of the vehicle order reading, unit from which it is read and .vo extension. You will need this file only in case of lost vehicle order.*

If you modify the vehicle order, you have to follow these steps to store it in ECUs:

1. Click on “Vehicle Order” button in the “Send to Unit” group. Save it in the unit from which it was read.
2. Click again on “Vehicle Order” to save it in the backup unit (both CAS & FRM or CAS & LM are supposed to have one and the same vehicle order).
3. Click on the “Central Coding” button to send the change in all related units of the car:

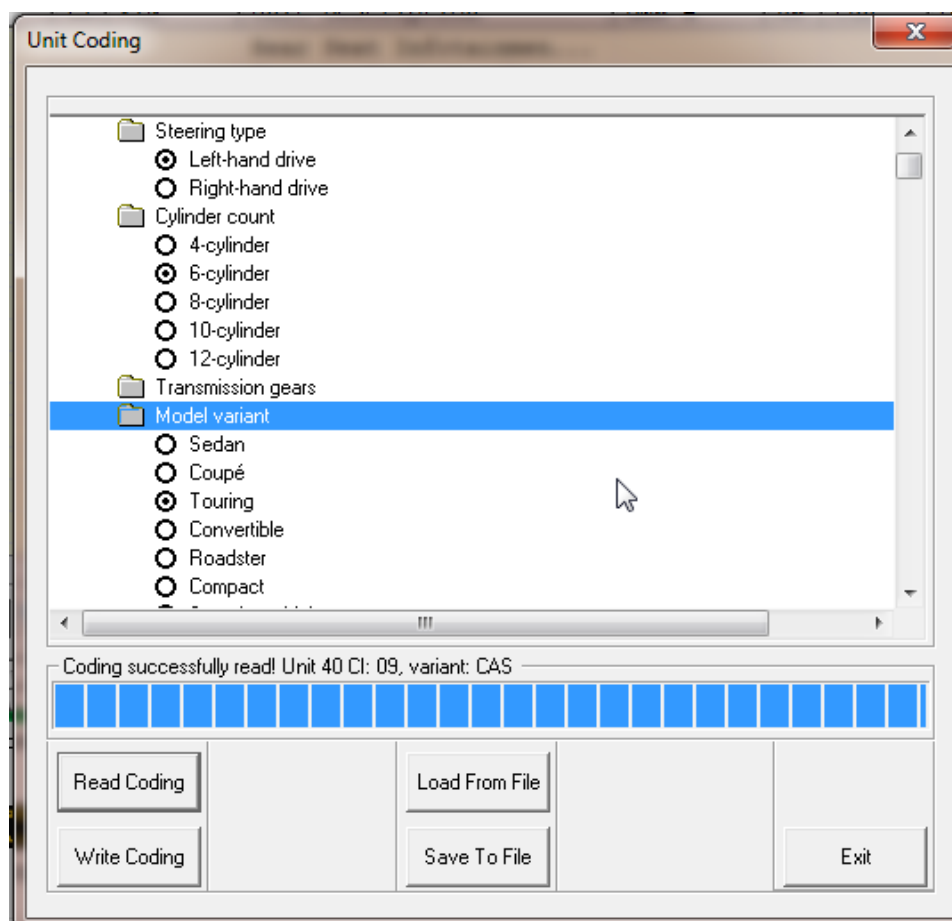
From the “Central Coding” dialog you choose which units of the car should be encoded with data, corresponding to the active vehicle order. You can choose more than one unit by pressing the “Control” button on the keyboard and clicking on the units in the list. You can select a group of options by clicking on the first option, hold Shift and then click on the last option. In this way you can easily select all modules in the car for coding. If you select modules that are not present in the vehicle, they will be skipped during the coding.



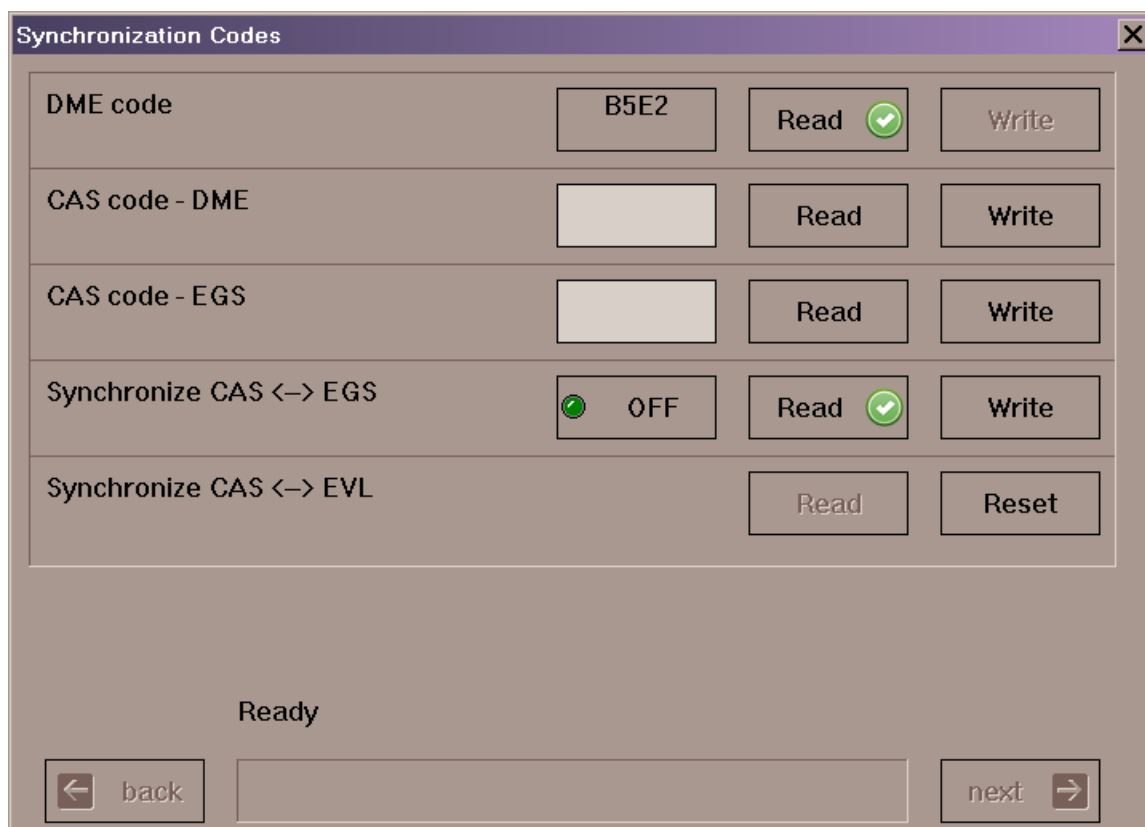
When you click on “Write Coding”, the coding for all selected modules starts. You have a message area with status for each of the processing steps. Before changing the coding, each module data is automatically backed up in a file in windows temp directory. If needed, this file can be written back in the device with the unit coding function.

## 6.8 Unit Coding



Unit coding allows tuning of each configurable option of the module. While the central coding defines the defaults (based on the Vehicle Order), unit coding allows manual adjustment of each of the options allowed for configuration. It is advisable to save the current coding in file before writing a new one into the module. You can use the unit coding dialog to transfer the coding from one module to another. Read it from one module, save it in file, load from file when the target unit is attached and write it in the device. From this dialog you can also restore coding from file backups, made by the central coding function.



## 6.9 Synchronization Codes

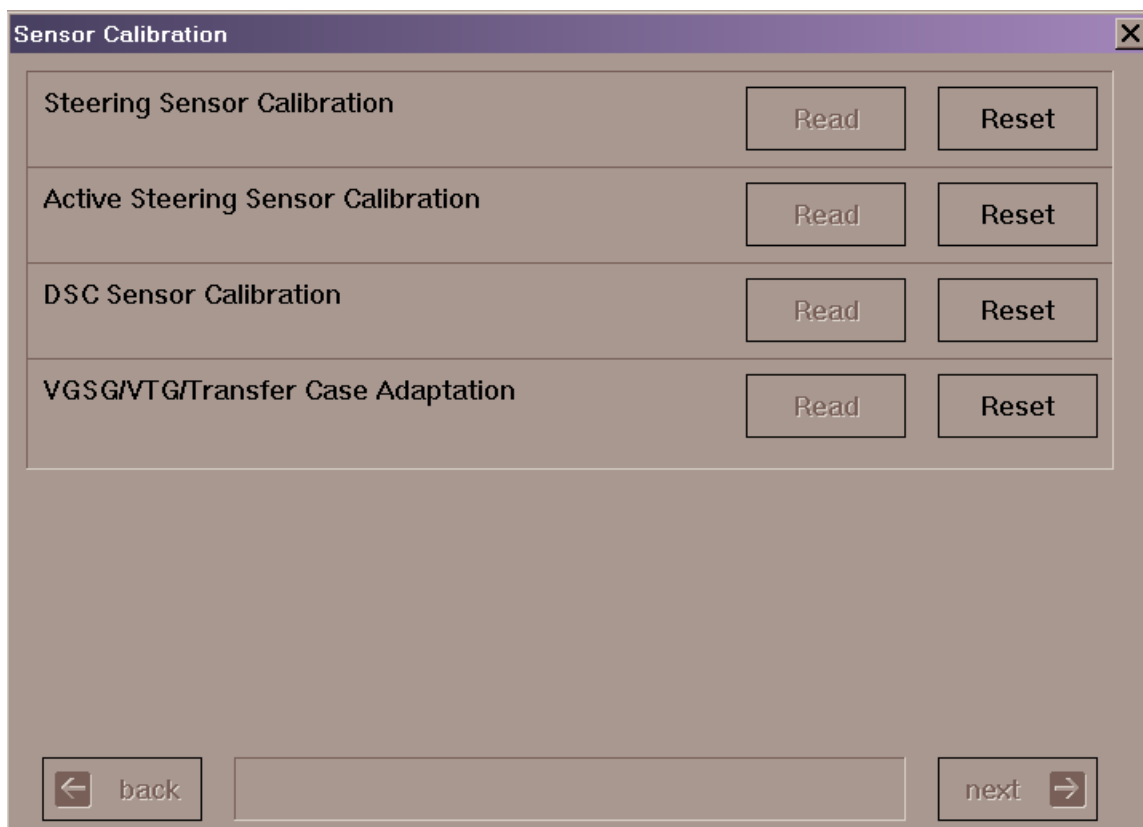


This function allows reading of static synchronization codes stored in modules. When you open the dialog, it starts automatic retrieval for some of the values. Some units take more time to read their values and they are skipped during the auto scanning – you have to explicitly click “Read” for them.

- ⤴ If a value is read successfully, it is marked with green check 
- ⤴ If value reading has failed, it is marked with exclamation mark 
- ⤴ If the value is not read at all – there is no mark

In the example above, CAS codes are not read at all – these take more time to retrieve and the user has to click explicitly on the read button.

## 6.10 Sensor Calibration



This set of functions allows sensors calibration. Some calibration procedures take several steps to complete – these are guided by wizard giving description for what should be done on each step:

## 6.11 Measured Values

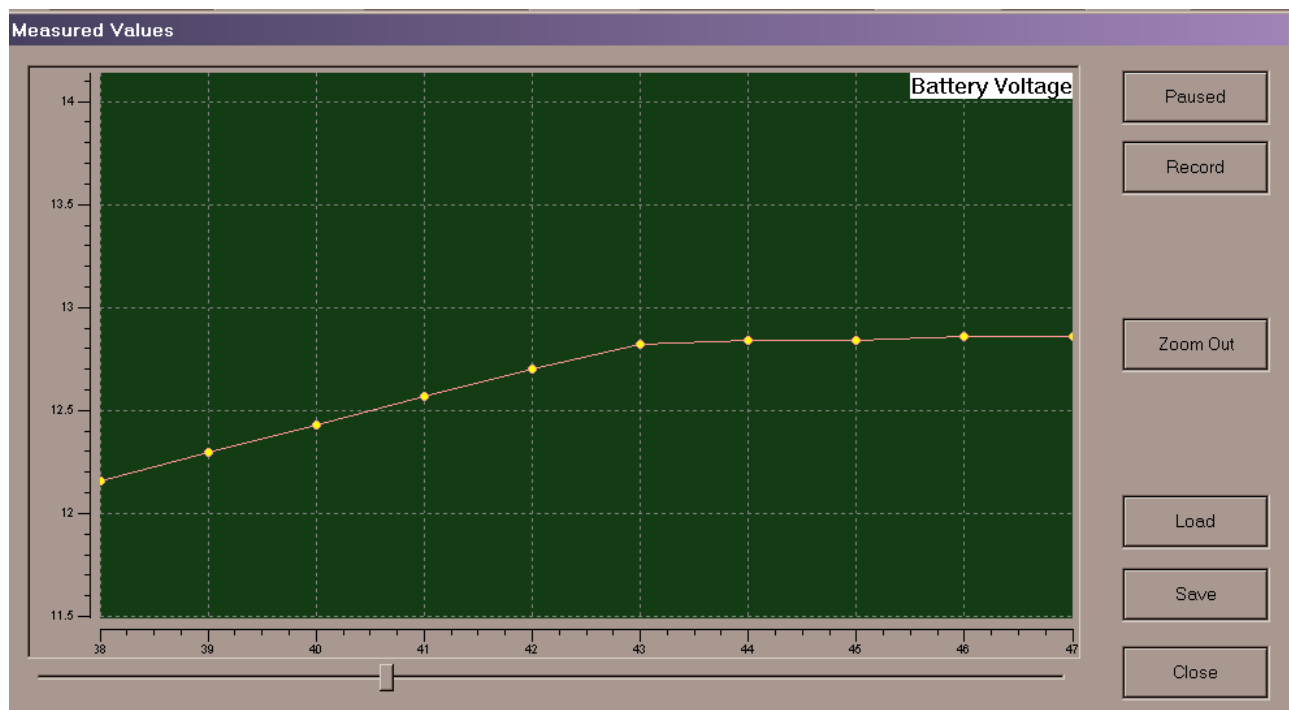
In the current version, it is supported retrieval of measured values from EDC16 and EDC17(both for E Series and F series vehicles).

Measured Values		
Brake lights switch	<input checked="" type="radio"/> ON	Read  Write
Brake light test switch	<input checked="" type="radio"/> OFF	Read  Write
AC-switch	<input checked="" type="radio"/> OFF	Read  Write
Automatic gearbox	<input checked="" type="radio"/> ON	Read  Write
Battery Voltage	13.1172	Live Data <input checked="" type="checkbox"/>
Speed [rpm]	0.0000	Live Data <input checked="" type="checkbox"/>

Reading From Selective mass adjustment cylinder 1

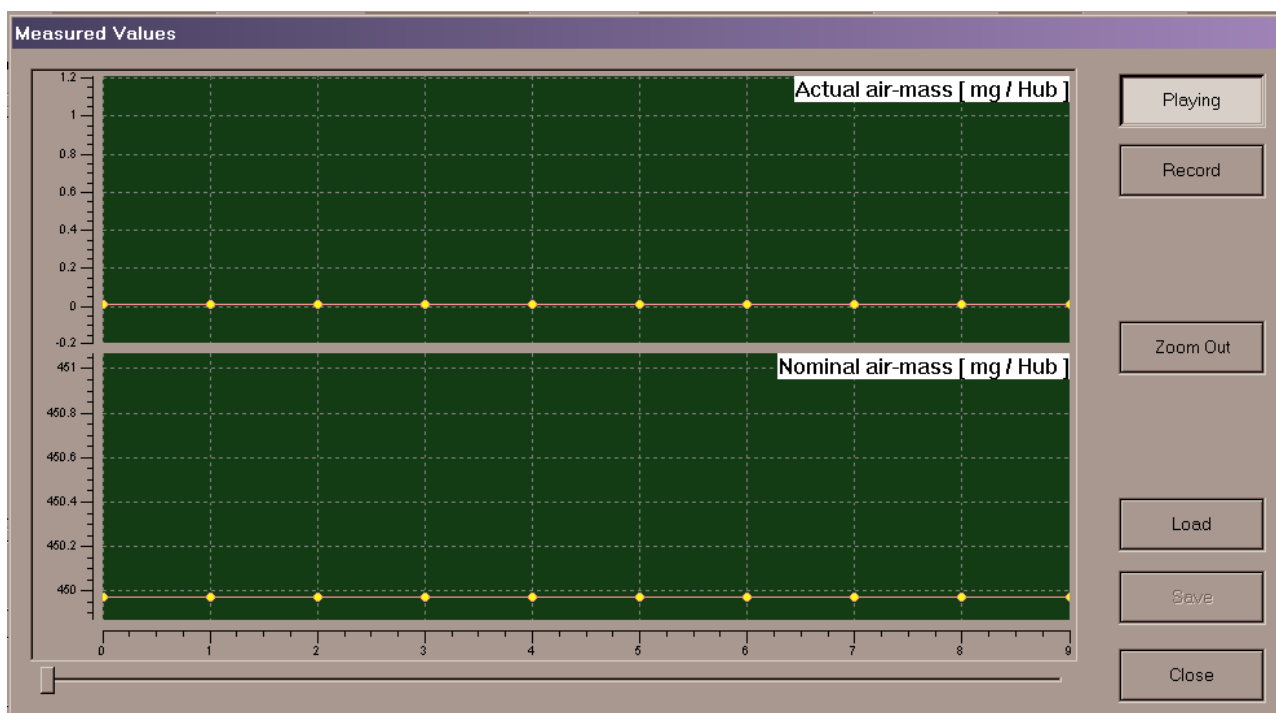
At this screen the data is refreshed in 2 sec.

You can click on the “Live Data” button to observe graphically the change of the value:



At this screen the data is refreshed at 50ms interval. When you push the “Playing” button, it will display graphically the change of the values, but will not record them. Click on “Record” to start collecting data which can be browsed back and forward with the scroll, saved in file (plain text file for easier offline analysis).

Some of the data values are related – they are visualized on one and the same display:



## 6.12 Injectors Calibration

The 'Injectors Calibration' window contains six input fields for injector codes, arranged in a 3x2 grid. Each field is labeled 'Injector 1' through 'Injector 6'. Below each field are three buttons: 'Read', 'Write', and 'Exit'.

Injector	Code
Injector 1	A K A I D E 7
Injector 2	6 H P V 5 I 5
Injector 3	6 Z P X 7 S 3
Injector 4	6 H G Z 5 S 5
Injector 5	A K A I D E 7
Injector 6	6 H P V 5 I 5

The option is available for EDC16 only. It allows writing in DME the values of the injectors that are inscribed on them

### 6.13 ECU Flasher

If you need to tuning some vehicle you can read engine control unit maps using function ECU flasher. After remapping you can program back maps in the ECU.

Please if you are not sure about type of your engine control unit use function autodetect.

Abrites Commander for BMW - Engine Control Unit Flash Manager

Engine Control Unit Type

Autodetect

Siemens MSD80

Read Flash

Program Flash

Exit

☐ Use custom address space

0 Address

0 Length



## 6.14 Flash Programmer

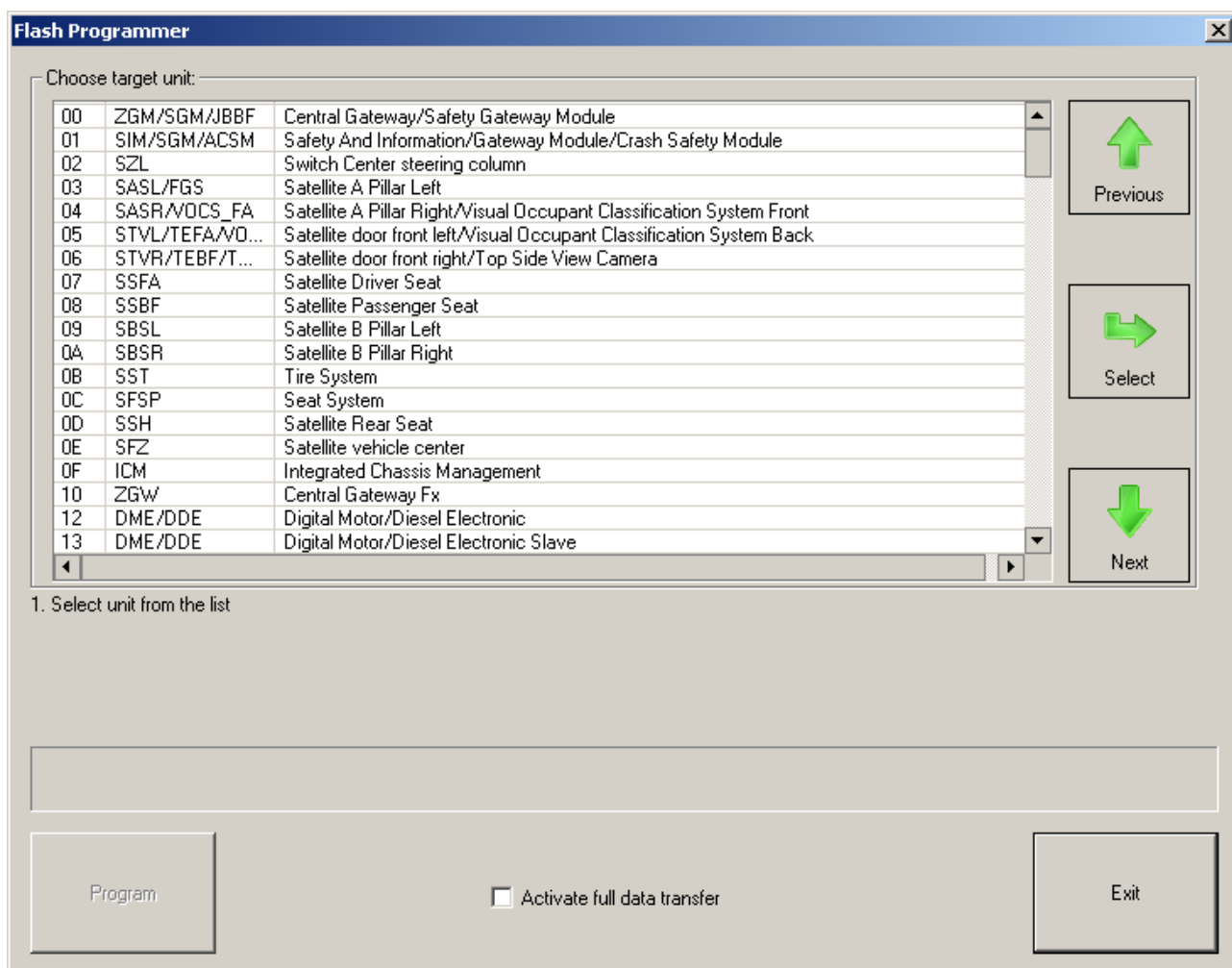
In many cases you need to update flash memory of electronic control units in the vehicle. This can be done by special function flash programmer.

You can reprogram flash memory of an electronic control units using database provided with installation package of Abrites Commander.

Due to the many different versions of electronic control units programming can failed. In this case you need to try second programming with activated option “Activate full data transfer”.

Some times before second programming of an unit you should disconnect and connect battery.

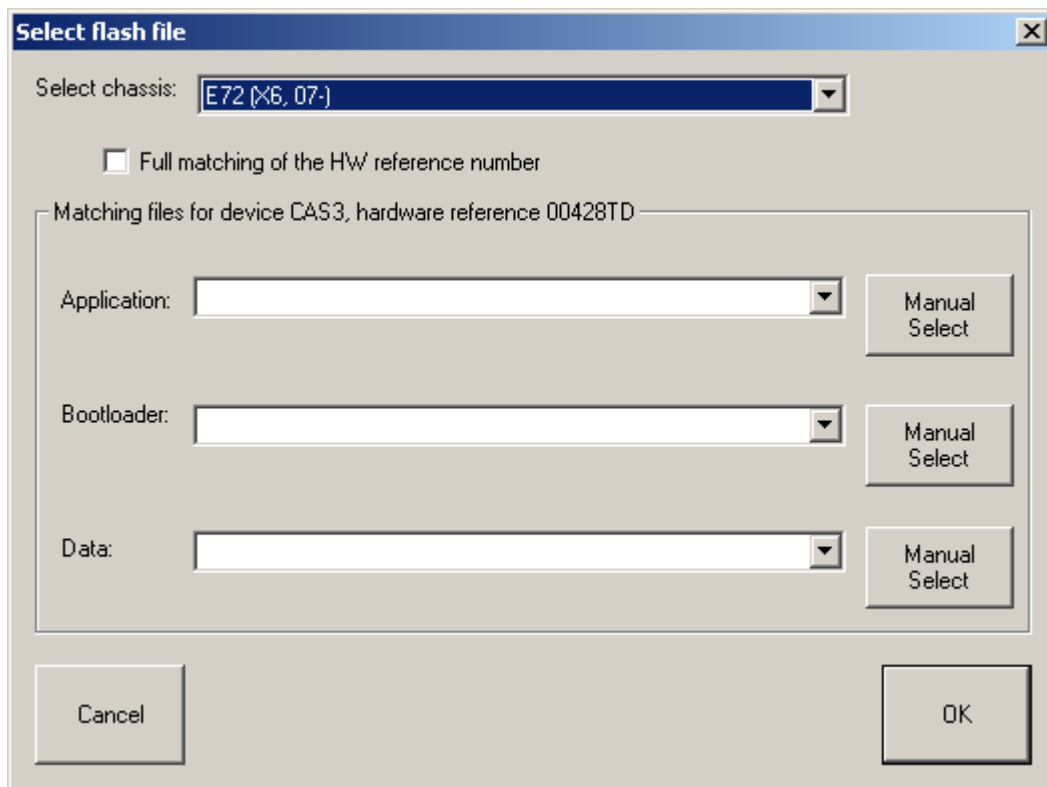
Please be careful that while programming battery voltage should be at least 13V!



Once selected unit for reprogramming you can choose which file you want to be programmed.

Generally HW reference number displayed on the screen defines flash which can be used.

You have option about listed files – whether you want full matching of HW reference number or not.

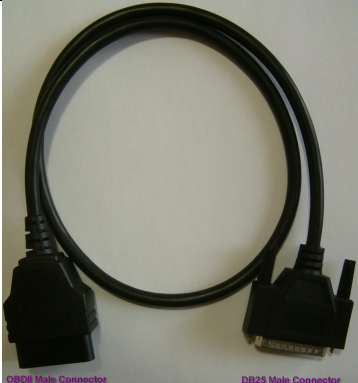


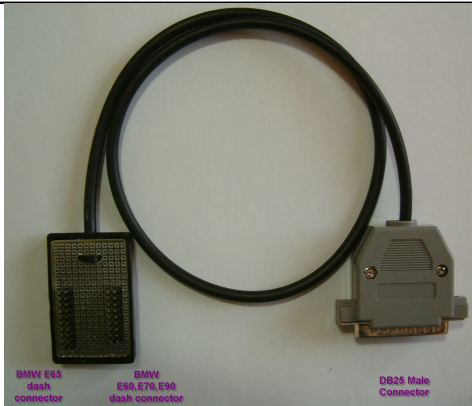
The image shows a Windows-style dialog box titled "Select flash file". At the top, there is a "Select chassis:" label followed by a dropdown menu showing "E72 (X6, 07-)". Below this is a checkbox labeled "Full matching of the HW reference number" which is currently unchecked. A text label "Matching files for device CAS3, hardware reference 00428TD" is positioned above a group of three rows. Each row consists of a label ("Application:", "Bootloader:", and "Data:"), a text input field, and a "Manual Select" button. At the bottom of the dialog are "Cancel" and "OK" buttons.

Label	Input Field	Action Button
Application:		Manual Select
Bootloader:		Manual Select
Data:		Manual Select

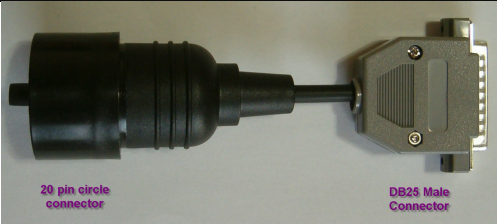
Before each reprogramming you will be asked about new data for UIF and ID stored in the unit. In some cases exchange data in UIF or ID is possible after reprogramming flash memory of the unit.

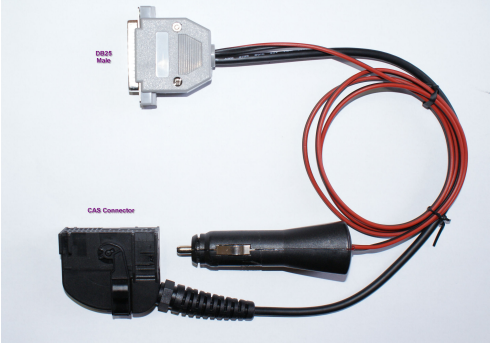
## 7 ADDITIONAL ADAPTERS AND CABLES

BC1	OBDII (Male)	DB25 (Male)	Description
 <p>OBDII Male Connector</p> <p>DB25 Male Connector</p>	4	5	Signal Ground
	5	6	Chassis Ground
	6	7	CAN high
	7	8	K-Line
	8	9	K-Line
	14	15	CAN Low
	16	17	+12V

BC2	E65 dash connector (20 pins)	DB25 (Male)	Description
 <p>BMW E65 dash connector</p> <p>BMW E66, E67, E68, E69 dash connector</p> <p>DB25 Male Connector</p>	6	7	CAN High 100
	7	15	CAN low 100
	9	17	+12V
	20	5	GND
	E60 dash connector (18 pins)	DB25 (Male)	
	6	7	CAN High 100
	7	15	CAN low 100
	9	17	+12V
	18	5	GND

NOTE : You should give an external power supply. Pin17 of DB25 +12V, Pin5 of DB25 – GND.

BC3	20 pin circle connector	DB25 (Male)	Description
	19	5	GND
	17&20	8	K – Line
	15	16	L – Line
	14	17	+12V

BC4	CAS Connector	DB25 (Male)	Description
	35	7	CAN High 100
	26	15	CAN Low 100
	1&21&19	17	+12V
	25&12	5	GND

NOTE: You should give an external power supply. Pin17 of DB25 +12V, Pin5 of DB25 – GND.